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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>15 June 2009</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-3,5-19,21-25 and 27-54</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-3,5-19,21-25 and 27-54</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail. Date _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This Office Action is in response to correspondence filed June 15, 2009 in reference to application 09/459,380. Claims 1-3, 5-13, 14-19, 21-25, and 27-54 are pending and have been examined.

Response to Amendment

2.   The amendments filed June 15, 2009 have been accepted and considered in this office action. Claims 4 and 20 have been cancelled.

Response to Arguments

3.   Applicant's arguments filed June 15, 2009 have been fully considered but they are not persuasive.

4.   Applicant argues, See Remarks page 28, that Epstein does not teach the keywords that are input by the user have a corresponding stored representation, however the examiner respectfully disagrees. It is noted that Epstein was relied upon only to show a method of a user entering a word into the device. Epstein was not relied upon to show that there was s stored representation. McDonough was relied upon for having stored representations of key words, and therefore it is irrelevant that Epstein functions by transforming the audio messages to text instead of searching for audio representations. All that is important in Epstein for the basis of this rejection is the way the words are entered by a user.

5.   Applicant argues, see Remarks page 29, that the "predetermined pattern" shown

by Furui's discussion of HMMs, are not the same as in the application, the examiner

respectfully disagrees. Applicant argues that the patterns are different because the

features in the specification show that the patterns are patterns of emotion, or stress,

etc. it is noted that this distinction is not recited in the rejected claim(s). Although the

claims are interpreted in light of the specification, limitations from the specification are

not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed.

Cir. 1993).

Claim Rejections - 35 USC § 103

6.   The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

McDonough and Epstein

7.   Claims 1, 4-10, 14-17, 20-23, 26-29, 47, 48,and 51-52 are rejected under 35

U.S.C. 103(a) as being unpatentable over McDonough et al. [US Patent 5,625,748] in

view of Epstein et al. [US Patent 6,327,343], both already of record.

8.   Regarding claim 1, McDonough describes the embodiment for processing

untranscribed speech by describing the content and functionality of the recited

limitations recognizable as a whole to one versed in the art as the following terminology:

voice representations and voice messages [at column 6, lines 23-29, as untranscribed speech data];

storing voice, corresponding to a word or phrase [at column 2, lines 1-17, as training words to the vocabulary, and at column 5, lines 47-48, as a vocabulary of words and phrases for speech events];

each voice representation is associated with a value [at column 6, lines 41-42, as parameter values for individual event distributions];

storing actions [at column 2, lines 14-17, as create a new node associating an action with a word];

receive a voice message [at column 1, lines 53-54, as provide an input speech message];

selecting a user specified word or a user specified phrase by a user, the selected user specified word or phrase corresponding to a word or phrase having a corresponding stored voice representation (column 12 line 13 events are selected by human operator from list of possible events, see figure 5 as well.)

analyze the voice message to determine if one or more stored voice representations corresponding to the selected user word of phrase occur in the message [at column 5, lines 43-50, as process a spoken message to produce a signal for the potential speech events in the spoken data If user selection is used as described column 12 line 13, then it is inherent that the models will correspond to the selection];

generate a final criteria measurement value associated with the voice message [at column 7, lines 28-44, as summing confidence scores over the speech data];

the final criteria measurement value based on the value associated with each determined stored voice representation occurring in the voice message [column 6 line 4-42, models are trained and parametric probabilistic models and parameter values are developed for stored representations. Column 6 line 1 the topic classifier uses model parameters determined in training. Therefore it is inherent that the confidence scores will be determined in part by this probabilistic parameters.];

perform one (or more) action(s) if the stored voice representations are found in the voice message [at column 2, lines 1-8, as route the message according to the action associated with the word];

performing the (stored) action based on the final criteria measurement value [at column 12, lines 28-41, as sort, classify or route based on the topic, wherein at column 5, line 64-column 6, line 1 the topic choice is a confidence score that a topic is present].

McDonough does not specifically teach that the selected word is received from the user as opposed to be being selected only.

In the same field of topic determination, Epstein teaches that a user can input key words into the device as a part of programming (column 12 lines 18-37.)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the input means of Epstein as a way of performing the selection in McDonough in order to allow the user to select the words without having to user cumbersome lists or menus.

9.   Claim 4 is set forth including the limitations of claim 1. <u>McDonough</u> and <u>Epstein</u>
describes those limitations as indicated there. <u>McDonough</u> also describes additional
limitations as follows:

        after receiving the voice message, receiving the user-specified word or phrase
from the user (column 12 lines 27-42, topic analysis can be carried out on recordings,
which could obviously be stored in the system before phrases are selected by the
user.); and

        after receiving the user-specified word or phrase from the user, performing the
step of analyzing (this order is inherent for the device to operate. The model parameters
must be determined before analyzing can take place).

10.   Claim 5 is rejected using the same rationale as in the previous Office action that
was mailed November 20, 2002 as paper 3, and is reproduced here:

        Claim 5 is set forth including the limitations of claim 1. <u>McDonough</u> and <u>Epstein</u>
describes those limitations as indicated there. <u>McDonough</u> also describes additional
limitations as follows:

        the user specifying actions to be performed if the voice representation is found in
the voice message [at column 2, lines 1-24, as the user specifies the correctness of the
action associated with the word to route the message according to the action associated
with the word];

        storing the user specified actions [at column 2, lines 1-24, as the user specifies
the correctness of the action to create a new node associating an action with a word];

the user specified actions are included in performing the stored actions [at column 2, lines 1-24, as route the message according to the action associated with the word for which the user specifies the correctness of the action associated with the word].

11.   Claim 6 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 6 is set forth including the limitations of claim 1. McDonough describes and make obvious those limitations as indicated there. McDonough [at column 12, lines 40-41] also describes classifying stored voice messages.

McDonough, however, does not explicitly describe classifying the message as urgent.

Epstein [at column 8, lines 23-34] also describes processing a voice message as the embodiment for stored audio data. Epstein describes:

marking the message as urgent [at column 17, line 40, as adding an urgency stamp].

Although McDonough describes classifying message, McDonough's does not enumerate any particular classifications. In view of Epstein's labeling a message as urgent, it would have been obvious to one of ordinary skill in the art of message handling at the time of invention to include Epstein's concept of marking as urgent as a classification for McDonough's messages because that would have enabled signaling the addressee that an urgent message is available.

12.   Claim 7 is rejected using the same rationale as in the previous Office action

(mailed November 20, 2002 as paper 3), and reproduced here:

Claim 7 is set forth including the limitations of claim 1. McDonough describes and

make obvious those limitations as indicated there. McDonough [at column 12, lines 36-

41] also describes routing a phone call based on the message.

McDonough, however, does not explicitly describe calling a pager. [at column 8,

lines 23-34] also describes processing a voice message as the embodiment for stored

audio data. Epstein describes:

calling a pager [at column 4, lines 1-3, as transmit a message to the user's

pager].

Although McDonough describes routing calls and messages, McDonough does

not enumerate any particular terminal type for receiving the message. In view of

Epstein's transmission to a pager, it would have been obvious to one of ordinary skill in

the art of message handling at the time of invention to include Epstein's ability to call a

pager for McDonough's messages because that would have enabled signaling the

addressee when the user is not at home or is out of the office, as Epstein describes [at

column 14, lines 47-48].

13.   Claim 8 is rejected using the same rationale as in the previous Office action that

was mailed November 20, 2002 as paper 3, and is reproduced here:

Claim 8 is set forth including the limitations of claim 1. <u>McDonough</u> and <u>Epstein</u>

describes and make obvious those limitations as indicated there. Because

<u>McDonough's</u> embodiments are directed equally to either processing of phone calls or

processing of stored messages, <u>McDonough</u> describes:

forwarding the voice message [at column 12, lines 36-41, as routing a phone call

based on the message, where the message is forwarded in the embodiment processing

a stored message].

14.   Claim 9 is rejected using the same rationale as in the previous Office action that

was mailed November 20, 2002 as paper 3, and is reproduced here:

Claim 9 is set forth including the limitations of claim 1. <u>McDonough</u> and <u>Epstein</u>

describes and make obvious those limitations as indicated there. Because

<u>McDonough's</u> embodiments are directed equally to either processing of phone calls or

processing of stored messages, <u>McDonough</u> describes:

the voice message is received over a telephone line [at column 2, line 19, as

speech over the telephone].

15.   Regarding claim 10, <u>McDonough</u> describes the claimed limitations as a whole

recognizable to one versed in the art as the embodiment for processing untranscribed

speech by describing the content and functionality of the recited limitations recognizable

as a whole to one versed in the art as the following terminology:

voice representations and voice information from a person [at column 6, lines 23-29, as untranscribed speech data, where at column 2, lines 25-26, the user speaks naturally];

storing voice, corresponding to a word or phrase [at column 2, lines 1-17, as training words to the vocabulary, and at column 5, lines 47-48, as a vocabulary of words and phrases for speech events];

each voice representation is associated with a value [at column 6, lines 41-42, as parameter values for individual event distributions];

storing actions [at column 2, lines 14-17, as create a new node associating an action with a word]; receive voice information from a person over a communications line [at column 2, lines 18-19, as conversational speech over the telephone];

selecting a user specified word or a user specified phrase by a user, the selected user specified word or phrase corresponding to a word or phrase having a corresponding stored voice representation (column 12 line 13 events are selected by human operator from list of possible events, see figure 5 as well.)

analyze the voice message to determine if one or more stored voice representations corresponding to the selected user word of phrase occur in the message [at column 5, lines 43-50, as process a spoken message to produce a signal for the potential speech events in the spoken data If user selection is used as described column 12 line 13, then it is inherent that the models will correspond to the selection];

generate a final criteria measurement value associated with the voice information [at column 7, lines 28-44, as summing confidence scores over the speech data];

the final criteria measurement value based on the value associated with each

determined stored voice representation occurring in the voice message [column 6 line

4-42, models are trained and parametric probabilistic models and parameter values are

developed for stored representations. Column 6 line 1 the topic classifier uses model

parameters determined in training. Therefore it is inherent that the confidence scores

will be determined in part by this probabilistic parameters.];

perform actions if the voice information includes a stored voice representation [at

column 12, lines 28-41, as respond to, route, or classify the phone call or incoming

voice message using the sorting for detection of speech data of interest];

performing the stored action based on the final criteria measurement value [at

column 12, lines 28-41, as sort, classify or route based on the topic, wherein at column

5, line 64-column 6, line 1 the topic choice is a confidence score that a topic is present].

McDonough does not specifically teach that the selected word is received from

the user as opposed to be being selected only.

In the same field of topic determination, Epstein teaches that a user can input

key words into the device as a part of programming (column 12 lines 18-37.)

Therefore it would have been obvious to one of ordinary skill in the art at the time

of the invention to combine the input means of Epstein as a way of performing the

selection in McDonough in order to allow the user to select the words without having to

user cumbersome lists or menus.

16.   Claim 14 is set forth including the limitations of claim 10 and with additional
limitations similar to limitations set forth in claim 5. McDonough and Epstein describes
the limitations as indicated there.

17.   Claim 15 is set forth including the limitations of claim 10.+- McDonough and
Epstein describes those limitations as indicated there. McDonough also describes
additional limitations as follows:

        receiving voice information during a call [at column 12, lines 37-38, as spoken
message by a phone call from a caller];

        compiling statistics on the call [at column 7, lines 46-47, as compute the scoring
statistic given the data in the message].

18.   Claim 16 is set forth including the limitations of claim 10 and with additional
limitations already described there.

19.   Regarding claim 17, McDonough describes the claimed limitations as a whole
recognizable to one versed in the art as the embodiment for processing untranscribed
speech by describing the content and functionality of the recited limitations recognizable
as a whole to one versed in the art as the following terminology:

        voice representations and voice messages [at column 6, lines 23-29, as
untranscribed speech data];

storing voice, corresponding to a word or phrase [at column 2, lines 1-17, as
training words to the vocabulary, and at column 5, lines 47-48, as a vocabulary of words
and phrases for speech events];

storing actions [at column 2, lines 14-17, as create a new node associating an
action with a word];

receive a voice message [at column 1, lines 53-54, as provide an input speech
message];

selecting a user specified word or a user specified phrase by a user, the selected
user specified word or phrase corresponding to a word or phrase having a
corresponding stored voice representation (column 12 line 13 events are selected by
human operator from list of possible events, see figure 5 as well.)

analyze the voice message to determine if one or more stored voice
representations corresponding to the selected user word of phrase occur in the
message [at column 5, lines 43-50, as process a spoken message to produce a signal
for the potential speech events in the spoken data If user selection is used as described
column 12 line 13, then it is inherent that the models will correspond to the selection];

generate a final criteria measurement value associated with the voice message
[at column 7, lines 28-44, as summing confidence scores over the speech data];

the final criteria measurement value based on the value associated with each
determined stored voice representation occurring in the voice message [column 6 line
4-42, models are trained and parametric probabilistic models and parameter values are
developed for stored representations. Column 6 line 1 the topic classifier uses model

parameters determined in training. Therefore it is inherent that the confidence scores

will be determined in part by this probabilistic parameters.];

each voice representation is associated with a final criteria measurement value

[at column 7, lines 28-44, as putative words and phrases with confidence scores are

summed over the speech data];

perform one (or more) action(s) if the stored voice representations are found in

the voice message [at column 2, lines 1-8, as route the message according to the action

associated with the ' word];

performing the (stored) action based on the final criteria measurement value [at

column 12, lines 28-41, as sort, classify or route based on the topic, wherein at column

5, line 64-column 6, line 1 the topic choice is a confidence score that a topic is present];

a storage device for storing the parameters associated with the claimed

functionality [at column 12, line 2, as the internal structure of the event detector, for the

example at column 2, lines 1-9, the word nodes and action nodes];

a processor for accomplishing the claimed functionality [at column 5, lines 45-46,

as a speech event frequency detector].

McDonough does not specifically teach that the selected word is received from

the user as opposed to be being selected only.

In the same field of topic determination, Epstein teaches that a user can input

key words into the device as a part of programming (column 12 lines 18-37.)

Therefore it would have been obvious to one of ordinary skill in the art at the time

of the invention to combine the input means of Epstein as a way of performing the

selection in <u>McDonough</u> in order to allow the user to select the words without having to

user cumbersome lists or menus.

20.   Claim 20 is set forth including the limitations of claim 17. <u>McDonough</u> and

<u>Epstein</u> describes the limitations as indicated there. <u>McDonough</u> also describes

additional limitations as follows:

         after receiving the voice message, receiving the user-specified word or phrase

from the user (column 12 lines 27-42, topic analysis can be carried out on recordings,

which could obviously be stored in the system before phrases are selected by the

user.); and

         after receiving the user-specified word or phrase from the user, performing the

step of analyzing (this order is inherent for the device to operate. The model parameters

must be determined before analyzing can take place).

21.   Claim 21 is rejected using the same rationale as in the previous Office action

(mailed November 20, 2002 as paper 3), and reproduced here:

         Claim 21 is set forth including the limitations of claim 17 and with additional

limitations similar to limitations set forth in claim 5. <u>McDonough</u> describes the limitations

as indicated there. <u>McDonough</u> [at column 2, lines 17-28] receives input from the user

for establishing user selection of words and actions.

         <u>McDonough</u>, however, does not explicitly describe an interface between the user

and the speech event frequency detector.

Epstein [at column 8, lines 23-34] also describes processing a voice message as the embodiment for stored audio data. Epstein also describes:

a user interface [at column 6, lines 7-13, as a programming interface].

Although McDonough describes receiving input from the user, McDonough does not explicitly describe any means to accept this input. Because McDonough describes user input, it would have been obvious to one of ordinary skill in the art of processing devices at the time of invention to include Epstein's concept of a programming interface with McDonough because that would provide the means for the user to provide the input to train McDonough's neural network to the words and actions.

22.   Claim 22 is set forth including the limitations of claim 17 and with additional limitations similar to limitations set forth in claim 9. McDonough and Epstein describe the limitations as indicated there.

23.   Claims 23, 28, and 29 are set forth with limitations similar to claims 10, 15, and 9. McDonough and Epstein describes the limitations as indicated there. McDonough also describes additional limitations as follows:

a storage device for storing the parameters associated with the claimed functionality [at column 12, line 2, as the internal structure of the event detector, for the example at column 2, lines 1-9, the word nodes and action nodes];

a processor for accomplishing the claimed functionality [at column 5, lines 45-46, as a speech event frequency detector].

24.   Claim 27 is rejected using the same rationale as in the previous Office action

(mailed November 20, 2002 as paper 3), and reproduced here:

        Claim 27 is set forth including the limitations of claim 23 and with additional

limitations similar to limitations set forth in claims 14 and 21. McDonough and Epstein

describe and make obvious the limitations as indicated there.

25.   Claim 47 is set forth with limitations similar to limitations set forth in claim 1.

McDonough and Epstein describes the limitations as indicated there. McDonough also

describes additional limitations as follows:

        means for storing the parameters associated with the claimed functionality [see

Fig. 1, items 20, 22, and their descriptions especially at column 12, line 2, of the internal

structure of the event detector, for the example at column 2, lines 1-9, the word nodes

and action nodes];

        means for receiving and analyzing a voice message and accomplishing the

claimed functionality [see Fig. 1, items 10, 12, 16, 18, and their descriptions, especially

at column 5, lines 45-46, of a speech event frequency detector, topic classifier and

classifier output].

26.   Claim 48 is set forth with limitations similar to limitations set forth in claim 23.

McDonough and Epstein describes the limitations as indicated there, where the storage

device and the processor are the means for storing, means for receiving, and means for analyzing.

27.   Claim 51 is set forth with limitations similar to limitations that are also set forth in claim 1. McDonough and Epstein describes the limitations as indicated there.

McDonough [at column 5, lines 45-46] also describes a processor for accomplishing the claimed functionality.

McDonough, however, does not explicitly describe that the speech event frequency detector is computer-implemented and with computer-readable contents.

Epstein [at column 8, lines 23-34] also describes processing a voice message as the embodiment for stored audio data. Epstein describes:

a computer readable medium whose contents cause the computer to perform the procedure [at column 4, lines 4-30, as associated memory for software implemented on a computer to accomplish the functionality].

To the extent that McDonough's system does not necessarily contain typical computer hardware and software, it would have been obvious to one of ordinary skill in the art of implementing functional descriptions of operations at the time of invention to include Epstein's concept of computer implementations by software loaded in computer-readable memory to achieve McDonough's speech processing functionality because that would have provided the best implementation under particular circumstances identified and evaluated by a skilled artisan. For example, it is within the ordinary skill of an artisan to determine that software elements, such as Epstein's concept, benefits

changing processing functions or adding other processing functions because software

elements are more easily modified than hardware elements.

28.   Claim 52 is rejected using the same rationale as in the previous Office action

(mailed November 20, 2002 as paper 3), and reproduced here:

29.   Claim 52 is set forth with limitations similar to limitations set forth in claim 23 and

with additional limitations similar to limitations set forth in claim 51. McDonough and

Epstein describe and make obvious the limitations as indicated there.

McDonough Epstein and Furui

30.   Claims 2, 3 ,11,12, 18, 19, 24, 25, 31, 33-34, 38, 42, 45, and 53-54 are rejected

under 35 U.S.C. 103(a) as being unpatentable over McDonough et al. [US Patent

5,625,748] and Epstein [US Patent 6,327,343] in view of Sadaoki Furui, "Digital Speech

Processing, Synthesis, and Recognition," Marcel Dekker, Inc., New York, 1989, pp.

225-289, both already of record.

31.   Claim 2 is rejected using the same rationale as in the previous Office action

(mailed November 20, 2002 as paper 3), and reproduced here:

        Claim 2 is set forth including the limitations of claim 1. McDonough and Epstein

describes those limitations as indicated there. McDonough [at column 7, lines 26-48]

also describes phonetic wordspotting for the preferred embodiments.

        Furui describes:

a voice message [at page 226, lines 19-22, as speech waveforms];

each stored voice representation is a phoneme representation of a word or

phrase [at page 244, lines 1-4, as reference templates use phonemes concatenates to

represent words].

Although, <u>McDonough</u> describes phonetic wordspotting, McDonough does not

explicitly describe phoneme models.

To the extent that <u>McDonough's</u> stored voice representations of words are not

necessarily phoneme representations, it would have been obvious to one of ordinary

skill in the art of speech recognition at the time of invention to include <u>Furui's</u> phoneme

based lexicon for wordspotting as <u>McDonough's</u> trained vocabulary, because

<u>McDonough</u> points out phonetic wordspotting as preferred.

32.   Claim 3 is rejected using the same rationale as in the previous Office action

(mailed November 20, 2002 as paper 3), and reproduced here:

Claim 3 is set forth including the limitations of claims 1-2. <u>McDonough</u> <u>Epstein</u>

and <u>Furui</u> describe and make obvious those limitations as indicated there. <u>McDonough</u>

[at column 11, lines 9-11] also describes implementing algorithms in the C

programming language for computing.

<u>McDonough</u> and <u>Furui</u>, however, do not explicitly describe digital conversion of

analog signals. [at column 8, lines 23-34] also describes processing a voice message

as the embodiment for stored audio data. <u>Epstein</u> describes:

a voice message [at column 8, lines 33-35, as stored audio data];

converting the analog voice message from analog to digital [at column 7, lines 1-5, as convert the analog data, such as an analog recorder, into digital data]; and

processing the digitized voice message [at column 9, lines 40-67, as convert voice data].

To the extent that McDonough's data is not innately digitized for the suggested computer algorithms, it would have been obvious to one of ordinary skill in the art of speech processing at the time of invention to include Epstein's analog to digital conversion for McDonough's data or Furui's data because the digital data could be processed on general purpose digital computers or programmable digital signal processors.

For the digital data then, Furui describes:

processing the voice message into phonemes [at page 244, lines 8-28, as short periods of input speech with phoneme-template structure are compared to phoneme reference templates to represent each word by concatenation of phonemes]; and

comparing the phonemes from the voice message with stored voice representations [at page 244, lines 42-44, as match the same phoneme positions between the input speech and reference templates].

33.   Claim 11 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 11 is set forth including the limitations of claim 10 and with additional limitations similar to limitations set forth in claim 2. McDonough and Epstein and Furui describe and make obvious the limitations as indicated there.

34.   Claim 12 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 12 is set forth including the limitations of claims 10-11 and with additional limitations similar to limitations set forth in claim 3. McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

35.   Claim 18 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 18 is set forth including the limitations of claim 17 and with additional limitations similar to limitations set forth in claim 2. McDonough and Epstein and Furui describe and make obvious the limitations as indicated there.

36.   Claim 19 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 19 is set forth including the limitations of claims 17-18 and with additional limitations similar to limitations set forth in claim 3. McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there. Epstein also describes

further limitations as follows: an analog to digital converter [at column 7, lines 1-5, as an analog-to-digital converter].

37.   Claim 24 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

       Claim 24 is set forth including the limitations of claim 23 and with additional limitations similar to limitations set forth in claim 2. McDonough and Epstein and Furui describe and make obvious the limitations as indicated there

38.   Claim 25 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

       Claim 25 is set forth including the limitations of claims 23-24 and with additional limitations similar to limitations set forth in claim 12. McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there. Epstein also describes further limitations as follows:

       an analog to digital converter [at column 7, lines 1-5, as an analog-to-digital converter].

39.   Claim 31 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 31 is set forth including the limitations of claim 30 and with additional limitations similar to limitations set forth in claim 3. McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

40.   Claims 33 and 34 are set forth including the limitations of claim 30 and with additional limitations similar to limitations set forth in claims 6 and 7. Neither McDonough nor Furui explicitly describes the additional limitations of claims 6 and 7; however, McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

41.   Claim 38 is rejected using the same rationale as in the previous Office action (mailed November 20, 2002 as paper 3), and reproduced here:

Claim 38 is set forth including the limitations of claim 37 and with additional limitations similar to limitations set forth in claim 12. McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

42.   Claim 42 is set forth including the limitations of claim 41 and with additional limitations similar to limitations set forth in claim 21. Neither McDonough nor Furui explicitly describes the additional limitations of claim 21; however, McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

43.   Claim 45 is set forth including the limitations of claim 44 and with additional limitations similar to limitations set forth in claim 27. Neither McDonough nor Furui explicitly describes the additional limitations of claim 27; however, McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

44.   Claim 53 is set forth with limitations similar to limitations set forth in claim 30 and with additional limitations similar to limitations set forth in claim 51. Neither McDonough nor Furui explicitly describes the additional limitations of claim 51; however, McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

45.   Claim 54 is set forth with limitations similar to limitations set forth in claim 37 and with additional limitations similar to limitations set forth in claim 51. Neither McDonough nor Furui explicitly describes the additional limitations of claim 51; however, McDonough, Furui, and Epstein describe and make obvious the limitations as indicated there.

McDonough and Furui

46.   Claims 30, 32, 35-37, 39-41, 43-44, 46, and 49-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDonough et al. [US Patent 5,625,748] and Epstein [US Patent 6,327,343] in view of Sadaoki Furui, "Digital Speech Processing,

Synthesis, and Recognition," Marcel Dekker, Inc., New York, 1989, pp. 225-289, both

already of record.

47.   Regarding claim 30, McDonough describes the claimed limitations as a whole

recognizable to one versed in the art as the embodiment for processing untranscribed

speech comprising:

        storing actions [at column 2, lines 14-17, as create a new node associating an

action with a word];

        receive a voice message [at column 1, lines 53-54, as provide an input speech

message];

        speech [at column 6, lines 23-29, as untranscribed speech data];

        predetermined patterns of speech [at column 7, lines 27-37, as HMMs from

training and modeling];

        analyze the voice message to determine if it exhibits a predetermined pattern of

speech [at column 5, lines 43-50, as process a spoken message to produce a signal for

the potential speech events in the spoken data];

        perform actions if the predetermined pattern is found in the voice message [at

column 2, lines 1-8, as route the message according to the action associated with the

word].

        Although, McDonough [at column 7, lines 27-44] describes spotting the words

and phrases of the speech data using phonetically trained HMMs for the preferred

embodiments, McDonough describes using HMMs for this method as known

techniques. Consequently, <u>McDonough</u> does not describe details of the techniques. In particular, <u>McDonough</u> does not explicitly describe HMMs representing either a tone of speech or a frequency of speech.

<u>Furui</u> [at page 255, lines 29-38 & page 258, lines 16-18] describes widely investigated word modeling by phonetic HMMs and that feature vectors are applied in HMMs. <u>Furui</u> describes:

the predetermined pattern representing a tone of speech in the voice message [at page 8, lines 1-15 and Fig. 8.15, as a lattice taking account of allophones, coarticulation, stress, and syllables];

the predetermined pattern representing a frequency (or other) of the speech in the voice message [at page 278, lines 3-9, as Markov models for recognition of input speech converted into spectral feature vectors by DFT].

In view of the teachings of <u>Furui</u> about the essential nature of voice containing frequency and tone, <u>McDonough's</u> stored voice representations must represent the frequency and tone of voice; however, to the extent that <u>McDonough's</u> stored voice representations of phonemes, words, and phrases may not innately represent frequency (or tone), it would have been obvious to one of ordinary skill in the art of speech recognition at the time of invention that <u>Furui's</u> DFT produces frequency spectral parameters to represent the HMMs suitable for implementing <u>McDonough's</u> HMMs for word and phrase spotting, because <u>McDonough</u> points out HMMs as preferred.

Although <u>McDonough</u> prefers HMM representations for the voice, <u>McDonough's</u> omission of particular details regarding HMMs is due to, and is evidence of, the lack of

any need for one of ordinary skill in the art of pattern matching to be reminded of such details.

48.   Claim 32 is set forth including the limitations of claim 30 and with additional limitations similar to limitations set forth in claim 5. <u>McDonough</u> and <u>Furui</u> describe and make obvious the limitations as indicated there.

49.   Claim 35 is set forth including the limitations of claim 30 and with additional limitations similar to limitations set forth in claim 8. <u>McDonough</u> and <u>Furui</u> describe and make obvious the limitations as indicated there.

50.   Claim 36 is set forth including the limitations of claim 30 and with additional limitations similar to limitations set forth in claim 9. <u>McDonough</u> and <u>Furui</u> describe and make obvious the limitations as indicated there.

51.   Claim 37 and claims 39 and 40 are set forth with limitations similar to claim 30 and with limitations similar to limitations set forth in claims 14 and 16. <u>McDonough</u> and <u>Furui</u> describe and make obvious the limitations as indicated there, where a stored voice representation is a predetermined pattern of speech.

52.   Claim 41 and claim 43 are set forth with limitations similar to limitations set forth in claim 30 and claim 22. <u>McDonough</u> and <u>Furui</u> describe and make obvious the

limitations as indicated there. McDonough also describes additional limitations as
follows:

    a storage device for storing the information associated with the claimed
functionality [at column 12, line 2, as the internal structure of the event detector, for the
example at column 2, lines 1-9, the word nodes and action nodes];

    a processor for accomplishing the claimed functionality [at column 5, lines 45-46,
as a speech event frequency detector].

53.   Claim 44 and claim 46 are set forth with limitations similar to limitations set forth
in claim 37 and claim 22. McDonough and Furui describe and make obvious the
limitations as indicated there. McDonough also describes additional limitations as
follows:

    a storage device for storing the information associated with the claimed
functionality [at column 12, line 2, as the internal structure of the event detector, for the
example at column 2, lines 1-9, the word nodes and action nodes];

    a processor for accomplishing the claimed functionality [at column 5, lines 45-46,
as a speech event frequency detector].

54.   Claim 49 is set forth with limitations similar to limitations set forth in claims 30
and 47. McDonough and Furui describe and make obvious the limitations as indicated
there.

55.   Claim 50 is set forth with limitations similar to limitations set forth in claims 37

and 48. McDonough and Furui describe and make obvious the limitations as indicated

there.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to DOUGLAS C. GODBOLD whose telephone number is

(571)270-1451. The examiner can normally be reached on Monday-Thursday 7:00am-

4:30pm Friday 7:00am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

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you have questions on access to the Private PAIR system, contact the Electronic

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DCG
/Richemond Dorvil/
Supervisory Patent Examiner, Art Unit 2626